

What is claimed is:

1. (Currently Amended): A marking device comprising:
- a housing encasing the device ~~and having external walls defining an extremity of the marking device;~~
 - a frame, pivotally ~~mounted between said external walls~~ connected to the housing about a first axis;
 - a marking head mounted on the frame;
 - a first motor to drive the marking head in the frame in a first direction parallel said first axis and spaced therefrom; and
 - a second motor ~~arranged~~ mounted in the housing arranged to pivot the frame with respect to the housing about said first axis in a second, substantially orthogonal direction; wherein,
 - during assembly of the device, the frame and said second motor are not supported with respect to one another until said housing encasing the device is assembled on and connected to the frame and the second motor whereupon the second motor is rendered capable of pivoting the frame in the housingsaid housing, frame, marking head and first and second motors operate together to move the marking head with respect to the housing, said housing forming an integral component of said operation.
2. (Previously Amended): A marking device as claimed 1, in which the housing further comprises a handle by means of which the device is manipulatable.
3. (Previously Amended): A marking device as claimed 1, in which a window is provided in the housing through which the marking head protrudes, said window having a face to rest, in use, against an object to be marked to stabilise the device.
4. (Currently Amended): A marking device as claimed in claim 3, in which the window is ~~selectively~~ detachable from the housing for replacement with differently shaped windows for abutment against differently shaped objects to be marked.

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5. (Original): A marking device as claimed in claim 3, in which the window comprises a V-section across said first direction and is adjustable on the housing in a third direction substantially orthogonal to said first and second directions.
 6. (Original): A marking device as claimed in claim 3, in which the window has a facing of resilient material adapted to abut a surface to be marked.
 7. (Original): A marking device as claimed in claim 1, in which said marking head has a pin arranged to be driven in a third direction substantially orthogonal said first and second directions against a surface to be marked.
 8. (Previously Amended): A marking device as claimed in claim 7, in which said marking head has a head housing and a solenoid in the head housing to drive said pin, said head housing and solenoid defining a chamber in which is slidably disposed a ferromagnetic piston to impact a base of said pin.
 9. (Previously Amended): A marking device as claimed in claim 8, in which a return spring is disposed between the pin and the piston to return the pin and piston to a ready position.
 10. (Original): A marking device as claimed in claim 1, in which the frame comprises a rail and a carriage slideable along said rail in said first direction.
 11. (Previously Amended): A marking device as claimed in claim 7, in which the frame comprises a rail and a carriage slideable along said rail in said first direction, and in which said head housing is mounted substantially directly on said carriage so that the rail, carriage and head housing all lie in said third direction, said head housing having substantially the same dimensions as said carriage, so that recoil impacts of said piston are transmitted directly into said carriage and thence to the rail and frame.

12. (Previously Amended): A marking device as claimed in claim 1, in which said housing is a clamshell housing opening in said first direction, each clamshell having a bearing bush and said frame having pivot pins captured in said bearing bushes.
13. (Original): A marking device as claimed in claim 12, in which a disc spring is disposed on at least one pin between the housing and the frame to take up any tolerance between the housing and frame.
14. (Currently Amended): A marking device comprising:
a housing of the device;
a frame arranged for pivotal movement with respect to the housing about a first axis;
a carriage mounted on the frame for translational movement in the frame in a first direction parallel said first axis and spaced therefrom;
a marking head mounted in the carriage
a first motor to drive the marking head in the frame; and
a second motor arranged to pivot the frame with respect to the housing about said axis in a second, substantially orthogonal, direction; wherein
said marking head includes a stylus pin and drive means to drive the pin in a third direction substantially orthogonal said first and second directions against a surface to be marked, ~~said first and second directions defining a plane~~ said third direction lying in a plane parallel said first direction; and
the frame, carriage, marking head, and first and second motors being disposed in the housing so that ~~their~~ centre of gravity of the frame, carriage, marking head, and first and second motors is sufficiently coincident said plane over all movements of the frame in said second direction wherein recoils of the marking head when the stylus is driven by said drive means do not cause moments about said centre of gravity.
15. (Previously Amended): A marking device as claimed in 14, in which the housing further comprises a handle by means of which the device is manipulatable.

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16. (Previously Amended): A marking device as claimed in 14, in which the motors each comprise a body, a rotary armature, and a screw, on which screw the armature is threaded, the screw being fixed.
17. (Previously Amended): A marking device as claimed in claim 16, in which the first motor is carried on the carriage, the screw of the first motor being fixed in the frame.
18. (Original): A marking device as claimed in claim 17, in which the frame comprises a U-shaped element along the base of which is fixed a rail and between the arms of which is fixed the screw.
19. (Currently Amended): A marking device as claimed in claim 18, in which the marking head, carriage, rail and the rotational axis of said first motor, are all in line in said plane.
20. (Previously Amended): A marking device as claimed in claim 16, further comprising a sub-frame, which is pivotally mounted in the frame about a sub-axis parallel said first axis, the second motor being fixed in said sub-frame, and a clevis, which is pivotally mounted in the housing about a clevis axis also parallel said first axis, the screw of the second motor being fixed in said clevis.
21. (Previously Amended): A marking device as claimed in claim 19, further comprising a sub-frame, which is pivotally mounted in the frame about a sub-axis parallel said first axis, the second motor being fixed in said sub-frame, and a clevis, which is pivotally mounted in the housing about a clevis axis also parallel said first axis, and in which said sub-axis is also inline with said marking head, carriage, rail and the rotational axis of said first motor.
22. (Previously Amended): A marking device as claimed in claim 20, in which said housing is a clamshell housing opening in said first direction, each clamshell having a bearing bush and said frame having pivot pins captured in said bearing bushes, and in which the housing

further comprises a handle by means of which the device is manipulatable, and in which each clamshell has a handle bearing bush in the region of the clamshell forming said handle of the device, said clevis comprising pivot pins captured in said handle bearing bushes.

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23. (Original): A marking device as claimed in claim 14, wherein said frame is pivotally mounted in the housing about said first axis.
 24. (Previously Amended): A marking device as claimed 14, in which a window is provided in the housing through which the marking head protrudes, said window having a face to rest, in use, against an object to be marked to stabilise the device.
 25. (Previously Amended): A marking device as claimed in claim 14, in which the marking head has a head housing and a solenoid in the head housing to drive said pin, said head housing and solenoid defining a chamber in which is slidably disposed a ferromagnetic piston to impact a base of said pin.
 26. (Previously Amended): A marking device as claimed in claim 14, in which the frame comprises a rail, said carriage being slidable along said rail in said first direction.
 27. (Previously Amended): A marking device as claimed in claim 25, in which the frame comprises a rail, said carriage being slidable along said rail in said first direction, and in which said head housing is mounted substantially directly on said carriage so that the rail, carriage and head housing all lie in said third direction, said head housing having substantially the same dimensions as said carriage, so that recoil impacts of said piston are transmitted directly into said carriage and thence to the rail and frame.
 28. (Previously Amended): A marking device as claimed in claim 23, in which said housing is a clamshell housing opening in said first direction, each clamshell having a bearing bush, and said frame having pivot pins captured in said bearing bushes.

29. (Original): A marking device as claimed in claim 28, in which a disc spring is disposed on at least one pin between the housing and the frame to take up any tolerance between the housing and frame.

30. (Previously Amended): A marking device comprising:

a housing of the device;

a frame arranged for pivotal movement with respect to the housing about a first axis;

a carriage mounted on the frame for translational movement in the frame in a first direction parallel said first axis and spaced therefrom;

a marking head mounted in the carriage

a first motor to drive the marking head in the frame; and

a second motor arranged to pivot the frame with respect to the housing about said axis in a second, substantially orthogonal, direction; wherein

said motors are disposed substantially within the confines of the frame.

31. (Previously Amended): A marking device as claimed in 30, in which the housing further comprises a handle by means of which the device is manipulatable.

32. (Cancelled).

33. (Previously Amended): A marking device as claimed in 30, in which the motors each comprise a body, a rotary armature, and a screw, on which screw the armature is threaded, said screw being fixed.

34. (Previously Amended): A marking device as claimed in claim 33, in which the first motor is carried on the carriage, the screw of the first motor being fixed in the frame.

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35. (Previously Amended): A marking device as claimed in claim 33, in which the frame comprises a U-shaped element having a base and arms, a rail being fixed along the base and the screw being fixed between the arms.
36. (Previously Amended): A marking device as claimed in claim 35, in which the marking head, carriage, rail and the rotational axis of said first motor, are all in line.
37. (Previously Amended): A marking device as claimed in claim 30, further comprising a sub-frame, which is pivotally mounted in the frame about a sub-axis parallel said first axis, the second motor being fixed in said sub-frame, and a clevis, which is pivotally mounted in the housing about a clevis axis also parallel said first axis, the screw of the second motor being fixed in said clevis.
38. (Previously Amended): A marking device as claimed in claim 35, further comprising a sub-frame, which is pivotally mounted in the frame about a sub-axis parallel said first axis, the second motor being fixed in said sub-frame, and a clevis, which is pivotally mounted in the housing about a clevis axis also parallel said first axis, and in which said sub-axis is also inline with said marking head, rail and the rotational axis of said first motor.
39. (Currently Amended): A marking device as claimed in claim 36, ~~in which the housing further comprises a handle by means of which the device is manipulatable, and in which each clamshell has a handle bearing vush in the region of the clamshell forming said handle of the device, said clevis comprising pivot pins captured in said handle bearing bushes~~38, further comprising a sub-frame, which is pivotally mounted in the frame about a sub-axis parallel said first axis, the second motor being fixed in said sub-frame, and a clevis, which is pivotally mounted in the housing about a clevis axis also parallel said first axis, and in which said sub-axis is also inline with said marking head, carriage, rail and the rotational axis of said first motor.

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40. (Previously Amended): A marking device as claimed 30, in which a window is provided in the housing through which the marking head protrudes, said window having a face to rest, in use, against an object to be marked to stabilise the device.
41. (Original): A marking device as claimed in claim 30, in which said marking head has a pin arranged to be driven in a third direction substantially orthogonal said first and second directions against a surface to be marked.
42. (Previously Amended): A marking device as claimed in claim 41, in which said marking head has a head housing and a solenoid in the head housing to drive said pin, said head housing and solenoid defining a chamber in which is slidably disposed a ferromagnetic piston to impact a base of said pin.
43. (Original): A marking device as claimed in claim 30, in which the frame comprises a rail, said carriage being slidable along said rail in said first direction.
44. (Previously Amended): A marking device as claimed in claim 42, in which the frame comprises a rail, said carriage being slidable along said rail in said first direction, and in which said head housing is mounted substantially directly on said carriage and is about the same dimensions as said carriage so that recoil impacts of said piston are transmitted directly into said carriage and thence to the rail and frame.
45. (Previously Amended): A marking device as claimed in claim 30, in which said housing is a clamshell housing opening in said first direction, each clamshell having a bearing bush and said frame having pivot pins captured in said bearing bushes.
46. (Previously Amended): A marking device as claimed in claim 1, in which said marking head has a marking point, which point is the tip of a marking pin of the marking head and at which the marking head contacts, in use, a surface to be marked, in which said second motor has a point of application at which it effects said pivoting of the frame, and in which

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said first axis is disposed between, and spaced from, said marking point and said point of application.

47. (Original): A marking device as claimed in 46, in which the distance between the marking point and said first axis is greater than the distance between said first axis and said point of application.

48. (Previously Amended): A marking device as claimed in claim 46, further comprising a sub-frame, which is pivotally mounted in the frame about a sub-axis parallel said first axis, the second motor being fixed in said sub-frame, in which said point of application comprises said sub-axis.

49. (Original): A marking device as claimed in claim 2, in which said handle comprises a pistol grip and includes a trigger to actuate the marking device.

50. (Original): A marking device as claimed in claim 1, further comprising a separate console controlling actuation of the motors to move the marking head in a desired pattern and to fire the marking head.

51. (Original): A marking device as claimed in claims 49, further comprising a separate console controlling actuation of the motors to move the marking head in a desired pattern and to fire the marking head, in which a control lead from said console enters a base of said pistol grip handle.

52. (Previously Amended): A marking device as claimed in claim 51, in which a distribution board is disposed in said pistol grip handle and said control lead terminates on said distribution board.

53. (Currently Amended): A marking device comprising:
a housing of the device;

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a frame arranged for pivotal movement with respect to the housing about a first axis;

a carriage mounted on the frame for translational movement in the frame in a first direction parallel said first axis and spaced therefrom;

a marking head mounted in the carriage

a first motor to drive the marking head in the frame; and

a second motor arranged to pivot the frame with respect to the housing about said axis in a second, substantially orthogonal, direction; wherein

said marking head includes a stylus pin and drive means to drive the pin in a third direction substantially orthogonal said first and second directions against a surface to be marked, ~~said first and second directions defining a plane~~ said third direction defining a plane parallel said first direction;

the motors each comprise a body, a rotary armature, and a screw, on which screw the armature is threaded;

the first motor is carried on the carriage, the screw of the first motor being fixed in the frame;

the frame comprises a U-shaped element along the base of which element is fixed a rail on which the carriage slides and between the arms of which element is fixed the screw;

the marking head, carriage, rail and the rotational axis of said first motor, are all in line in said plane.

54. (Previously Added): A marking device as claimed in claim 53, further comprising a sub-frame, which is pivotally mounted in the frame about a sub-axis parallel said first axis, the second motor being fixed in said sub-frame, and a clevis, which is pivotally mounted in the housing about a clevis axis also parallel said first axis, the screw of the second motor being fixed in said clevis.
55. (Previously Added): A marking device as claimed in claim 53, further comprising a sub-frame, which is pivotally mounted in the frame about a sub-axis parallel said first axis, the

second motor being fixed in said sub-frame, and a clevis, which is pivotally mounted in the housing about a clevis axis also parallel said first axis, and in which said sub-axis is also in line with said marking head, carriage, rail and the rotational axis of said first motor.

56. (Currently Amended): A marking device comprising:

a housing encasing the device~~including internal walls having a structural support thereon;~~

a frame, pivotally connected to the housing about a first axis;

a marking head mounted on the frame;

a first motor to drive the marking head in the frame in a first direction parallel said first axis and spaced therefrom; and

a second motor mounted in the housing arranged to pivot the frame with respect to the housing about said first axis in a second, substantially orthogonal direction; ~~wherein said frame, first motor, and second motor being enclosed within the housing and operating together to move the marking head with respect to the housing wherein,~~

during assembly of the device, the housing mechanically and operatively couples the frame to the second motor whereupon the second motor is rendered capable of pivoting the frame in the housing.

57. (New): A marking device as claimed in claim 56, further comprising:

a carriage mounted on the frame for translational movement in the frame in a first direction parallel said first axis and spaced therefrom;

a marking head mounted in the carriage.
